

NEW NEOTROPICAL SPECIES OF *MELIOSMA* (SABIACEAE)¹

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ABSTRACT

Meliosma hartshornii A. Gentry, from Costa Rica; *M. corymbosa* A. Gentry and *M. nanarum* A. Gentry, from Nicaragua; *M. peytonii* A. Gentry and *M. vasquezii* A. Gentry from Peru; and *M. solomonii* A. Gentry from Bolivia are described.

A number of undescribed species of *Meliosma* have been encountered in the process of preparing the familial treatments of Sabiaceae for the Floras of Nicaragua and Peru and in the course of general identification. *Meliosma* is a largely warm-temperate to montane-tropical genus with at least 15 Asian and ca. 40 neotropical species. A characteristic but rather nondescript element of many Latin American cloud forests, it is very poorly collected and as a result is poorly known taxonomically. Indeed this paper presents the first report of the genus for Peru. Each of the new species proposed here is represented by several collections, making possible an assessment of patterns of intraspecific variability. In addition to these six species, there are many unidentified *Meliosma* collections, especially from Peru, that seem to fit none of the described taxa and may belong to as many as ten or more additional new species. Alternatively these additional collections might represent many fewer relatively polymorphic taxa. I have refrained from describing further presumably new taxa in hopes that future collections will provide clearer understanding of specific delimitations.

Meliosma hartshornii A. Gentry, sp. nov. TYPE: Costa Rica. Heredia: road to Volcán Barba, 2 km N of Sacramento, 2,750 m. alt, 29 Dec. 1974, *G. Hartshorn 1608* (holotype, MO).

Arbor usque 15 m alta. Folia oblanceolata vel anguste elliptica, usque 11 cm longa et 4 cm lata, domatiis axillaribus pubescentibus. Inflorescentia sparsim adpresso-puberula, pedicellis 1–2 mm longis, florum sepalis 1.5 mm longis, petalis ca. 2 mm longis. Fructus globosus, 0.8–1.0 cm diametro.

Tree to 50 cm dbh and 15 m tall; branchlets somewhat angled, glabrous or with a few minute

and inconspicuous reddish trichomes, the bark finely longitudinally ridged, with scattered raised lenticels. Leaves alternate to irregularly clustered, oblanceolate to narrowly elliptic, 2–11 cm long, 1–4 cm wide, acute to apiculate at apex, cuneate and often somewhat marginally inrolled at base, coriaceous, the 2° and 3° venation subprominent above and below, the surface minutely and densely punctate above and lepidote-punctate below, glabrous above and below except for conspicuous tufts of simple trichomes in the axils of the lateral nerves below, drying grayish-olive above, olive or brownish-olive with tan main veins below; petiole 0.2–1 cm long. Inflorescence pyramidal-paniculate with a well-developed central axis, 8–17 cm long, usually opposed to a subterminal leaf or short branch, appearing more or less terminal, glandular-papillose and also sparsely appressed-puberulous, the thick pedicels 1–2 mm long. Sepals 5, ovate, ca. 1.5 mm long, glandular-papillose, the margin strongly ciliate; petals mostly caducous and missing on type, ca. 2 mm long; stamens with slender 2 mm long filament, the bottom half fused with the bottom half of the narrow inner petal, the anthers subglobose, ca. 0.6 mm long, subtended by the thickened connective; ovary ovoid, ca. 1 mm long, densely puberulous, the style linear, 1 mm long. Fruit red when fresh, globose, 0.8–1.0 cm in diameter, not stipitate, sparsely puberulous with flexuous trichomes when young, essentially glabrate, 1-seeded, 0.8–1.0 cm in diameter.

Apparently endemic to the cloud forests of Volcán Barba between 2,700 and 2,800 m.

Additional collection examined. COSTA RICA. HEREDIA: road to Volcán Barba, 1.5 km N of Sacramento, 2,700 m; tree 50 cm dbh, 15 m tall, fruit red, 27 Jul. 1975, *Hartshorn 1759* (MO).

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This species is distinctive in the genus in its small leaves and smallish fruits. It is closely related to *M. irazuensis* Standl., known only from the type from Volcán Irazú. The main difference is in the larger, pedicellate flowers of *M. hartshornii* as opposed to the tiny (<1 mm long) sessile flowers of *M. irazuensis*. The inflorescence of *M. irazuensis* differs in being narrower, having simple lateral branches with more crowded sessile flowers, and, especially in the very different, much denser pubescence of erect reddish trichomes. Vegetatively that species apparently can be distinguished from *M. hartshornii* by its narrower oblanceolate leaves and pubescent young branches. Another small-fruited, usually small-leaved relative of *M. hartshornii* is *M. idiopoda* Blake, common at somewhat lower elevations in Costa Rica and Chiriquí. The material of *M. hartshornii* was originally identified as a variant of *M. idiopoda*, but its much thicker inflorescence branches and pedicels, larger flowers, thicker more coriaceous leaves, and consistently larger fruits distinguish it from that species.

Meliosma corymbosa A. Gentry, sp. nov. TYPE: Nicaragua. Matagalpa: Cordillera Darienense near Aranjuez, 15 km N of Matagalpa, 1,400 m alt., lower montane moist forest; tree 20 m, 12 Aug. 1977, Neill 2342 (holotype, MO; isotypes, HNMN, to be distributed).

Arbor usque 20 m alta. Folia oblanceolata vel anguste elliptica, 5–13 cm longa, 1.4–4 cm lata, glabra. Inflorescentia terminalis, corymboso-paniculata, puberula, florum sepalis minus quam 1 mm longis. Fructus asymmetricus subglobosus, 1.6–1.8 cm longus, 1.5–1.6 cm latus.

Tree 20 m tall, the branchlets somewhat angled, glabrous, the bark very finely longitudinally ridged. Leaves irregularly arranged, in part opposite or subopposite, always in part clearly alternate, oblanceolate to very narrowly elliptic, 5–13 cm long, 1.4–4 cm wide, acute at apex, narrowly cuneate at base, coriaceous, entire, drying dark above, olive brown below, the lateral veins plane and inconspicuous above, prominent below, completely glabrous except for a very few scattered and inconspicuous lepidote or stellate-lepidote trichomes below; petiole slender, indistinctly demarcated from the tapering leaf base, ca. 0.5–2 cm long, glabrous except for a very few minute and inconspicuous scales. Inflorescence terminal, corymboso-paniculate, flat-topped and greatly exceeding the uppermost

leaves, dense, puberulous with tiny suberect, reddish trichomes, ca. 10 cm long and 15 cm across, the flowers ultimately on short pedicels, mostly ca. 1–2 mm long. Sepals 5, ovate, minute, less than 1 mm long, glandular-lepidote, the margin minutely ciliate; outer petals broadly ovate, ca. 2 mm long but the rounded apex inrolled, ca. 1.5 mm wide, the inner ones narrow, ca. 2 mm long; fertile stamens 2, the anther thecae thick and suborbicular, ca. 0.5 mm long, subtended by the broad connective; staminodes 3, ca. 1 mm long; ovary ovoid, ca. 1 mm long, merging with the short style. Fruit asymmetrically subglobose, 1.6–1.8 cm long and 1.5–1.6 cm wide, short-stipitate, minutely glandular-papillose, otherwise glabrous, 1-seeded.

Apparently endemic to the montane forests of north central Nicaragua in Matagalpa and Jinotega Provinces.

Additional collections examined. NICARAGUA. MATAGALPA: Macizos de Peñas Blancas, SE side, N of Hda. San Martín, 13°14–15'N, 85°39'W, 950–1,000 m alt., border with Jinotega, 24 Nov. 1981, W. Stevens & R. Riviere 20916 (MO). JINOTEGA: road from Hwy. 3 to Fundadora, 13°2–4'N, 85°54–55'W, 1,200–1,400 m, large tree in cafetal, 9 Dec. 1983, Stevens 22542 (MO).

This is a remarkably distinctive species on account of its large corymbose terminal panicle. No other Neotropical species of the genus (and no Asian species represented at MO) has an even remotely similar flat-topped inflorescence; all other species have pyramidal (or variously reduced) inflorescences. In general aspect flowering collections of *M. corymbosa* somewhat resemble some species of *Viburnum* much more than any *Meliosma*. The first collection of this species was filed at MO for some time as a familial “indet.” and at first I suspected that it might not belong to Sabiaceae at all. However, the flowers and fruits are undoubtedly the highly distinctive ones of *Meliosma*.

Meliosma nanarum A. Gentry, sp. nov. TYPE: Nicaragua. Zelaya: Cerro El Hormiguero, west range, ca. 13°44'N, 85°00'W, 1,100–1,183 m, dense virgin elfin forest, tree ca. 7 m, fruit pendent, green, 15 Apr. 1979, J. Pipoly 5169 (holotype, MO; isotypes, HNMN, to be distributed).

Arbor 6–15 m alta. Folia oblanceolata vel anguste elliptica, 3–16 cm longa, 1.2–4.5 cm lata, plus minusve glabra. Inflorescentia ramiflora, pyramidato-paniculata, sparsim adpresso-puberula. Fructus obpyriformis, 1.7–2 cm longus, 1.3–1.9 cm latus.

Tree 6–15 m tall, the branchlets rather thick and crooked, irregularly angled, glabrous or with a few appressed trichomes at extreme tip, with a few scattered large raised round lenticels. Leaves alternate to clustered, oblanceolate to narrowly elliptic, 3–16 cm long, 1.2–4.5 cm wide, acute to short-acuminate at apex, cuneate at base, coriaceous, entire, the venation plane above, intricately prominulous below, essentially glabrous, sometimes with a very few appressed trichomes scattered along midvein below, the surface densely and minutely papillose-glandular, drying dark gray above, brownish below; petiole slender, 1–2 cm long. Inflorescence (in fruit) from below the leaves, rather small, ca. 9–15 cm long, pyramidal-paniculate, with thick well-developed central axis, sparsely minutely appressed-puberulous. Flowers not seen. Fruits obpyriform, 1.7–2 cm long, 1.3–1.9 cm wide, with the poorly demarcated thick basal stipe having a conspicuous asymmetric squarish corner at base, glabrous except for some scales, drying rather light brown.

Apparently locally endemic in the cloud forests of the isolated Cerros La Pimienta and Hormiguero of Zelaya Province, Nicaragua, where it is reported to be locally very common.

Additional collections examined. NICARAGUA. ZELAYA: Cerro La Pimienta, N slope facing La Garrapata, 13°45'N, 84°59'W, 900–1,180 m, cloud forest and lower elfin forest; tree 6 m, frt. green, common in lower elfin forest, 16 Mar. 1980, *J. Pipoly 6049* (MO); Cerro La Pimienta, eastern range, 13°45'N, 84°59'W, 900–1,160 m, tree 7 m, lower elfin forest, fruit green, majority fruiting, locally common, 17 Apr. 1969, *J. Pipoly 5258* (MO); Cerro El Hormiguero, 800–1,000 m, 13°44'30"N, 84°59'30"W, arbol 15 m, frutos verdes, 14 Apr. 1979, *A. Grijalva 318* (MO).

This is a rather nondescript species characterized by small leaves similar in size to those of *M. idiopoda* Blake or *M. matudae* Lundell but more coriaceous. However, the fruits of *M. nanarum* are much larger than those of other small-leaved species and in size approach those of *M. glabrata* Urb. or *M. occidentalis* Cuatr., which differ not only in their larger more membranaceous leaves but apparently also in a thicker fleshier fruit.

Meliosma peytonii A. Gentry, sp. nov. TYPE: Peru. Cuzco: Urubamba, Machu Picchu 0.5 km N of junction of Sayacmarca and Aobamba Rivers, 2,410 m, humid low montane subtropical forest on a ridgeline, 13 Oct. 1982, *Peyton & Peyton 1483* (MO).

Arbor 5–10 m alta. Folia oblanceolata, plerumque 13–29 cm longa, 4–9.5 cm lata, domatiis axillaribus pubescentibus. Inflorescentia paniculata, sparsim puberula. Fructus asymmetricice subglobosus, 1.5–1.8 cm longus, 1.3–1.6 cm latus.

Spindly tree 5–10 m tall, the branchlets somewhat angled, glabrous or glabrescent except for a few minute scales, the surface grayish, very finely striate-ridged, with scattered raised lenticels. Leaves clearly alternate, oblanceolate, (5–) 13–29 cm long, (1.6–)4–9.5 cm wide, rounded but often subapiculate at apex, cuneate at base, coriaceous, essentially entire to sharply but shallowly serrate, drying olive brown to grayish above and below, the main veins more or less impressed above and raised below, the surface papillate above, scattered lepidote-glandular below, with conspicuous tufts of trichomes in axils of lateral nerves below, otherwise glabrous; petioles well demarcated, thickened at base, 1–3 cm long. Inflorescence (seen only in fruit) paniculate, axillary and terminal, glabrescently puberulous, the fruits sessile on short thick woody pedicels. Flowers not seen. Fruits yellow-green turning red when ripe, asymmetrically subglobose, 1.5–1.8 cm long, 1.3–1.6 cm wide, slightly contracted into a very broad and poorly demarcated basal stipe, the surface glabrous, papillate-glandular.

Apparently endemic to the Machu Picchu area of the middle Urubamba Valley, between 2,100 and 2,400 m.

Additional collections examined. PERU. CUZCO: Urubamba, Machu Picchu, 0.5 km N of union of Sayacmarca and Aobamba Rivers, 2,350 m, 11 Oct. 1982, *Peyton & Peyton 1472* (MO); above first waterfall of Río Mandor, 2.5 km from Machu Picchu, 2,230 m, *Peyton & Peyton 431* (MO).

This tree is reported by B. Peyton (pers. comm.) to be one of the most commonly occurring trees in his study areas in the narrow belt of low, very humid montane forest between 2,100 and 2,300 m around Machu Picchu and in the nearby Lucumayo drainage. Field notes indicate that the species is often climbed or marked by spectacled bears and B. Peyton (pers. comm.) suspects that these bears eat its fruits.

A second sheet of *Peyton & Peyton 431*, though superficially very similar to the fertile one, apparently consists of part of a compound leaf of a *Cupania* and is not included in the above description.

This species is closest to *M. frondosa* Cuatrec. & Idrobo in vegetative characters but that species has closer together, less strongly ascending sec-

ondary veins, a black-ripening fruit, and less tapered leaf base.

Meliosma solomonii A. Gentry, sp. nov. TYPE: Bolivia. La Paz: Provincia Nor Yungas, valley of Río Coroico, Sacramento, 10 km NE of Chuspipata, 2,450 m, dense ridge-top cloud forest, 67°48'W, 16°18'S. Tree 6 m, flowers white, 27 Jan. 1984, *Gentry & Solomon 44710* (holotype, MO; isotypes, LPB, MO, to be distributed).

Arbor usque 6 m alta. Folia lanceolata vel anguste elliptica, 5–19 cm longa, 1–3.9 cm lata, praeter squamas lepidotas glabra. Inflorescentia pyramidato-paniculata, sparsim puberula, florum sepalis 2 mm longis, petalis 2 mm longis. Fructus ignotus.

Tree to 6 m tall, the branchlets somewhat angled to subterete, puberulous with short stiff ascending hairs when young, glabrescent and glandular-punctate when older, finely longitudinally ridged and with scattered raised lenticels. Leaves alternate, usually irregularly arranged and clustered, lanceolate to very narrowly elliptic, 5–19 cm long, 1–3.9 cm wide, acute to acuminate at apex, cuneate at base, coriaceous, mostly entire, sometimes in part remotely dentate at least toward apex, drying olive to brownish-olive above, brownish below, the secondary veins raised below, plane and inconspicuous above, completely glabrous below except for scattered lepidote glands, above glabrous except for a few scales and reddish trichomes on the deeply impressed midrib; petiole slender at apex, thicker at base, 0.7–1.8 cm long, grooved and puberulous adaxially. Inflorescence terminal and axillary in uppermost leaves, pyramidal-paniculate with an angled well-developed central axis, sparsely puberulous with short subappressed trichomes, with triangular-subulate 1–3 mm long bracts subtending each branch, the individual flowers subtended by a triangular bracteole ca. 1 mm long, subsessile or with a 1 mm long pedicel. Sepals 5, broadly ovate, ca. 2 mm long, glabrous except for ciliate margin; petals broadly ovate, ca. 2 mm long; stamens with slender 1 mm long filaments, fused at base with the small narrow bifid inner petal, the anthers small, widely separated by the thickened connective, including connective ca. 0.5 mm broad; pistil 1 mm long, the ovary ovoid, glabrous, ca. 0.5 mm long, tapering to a linear style ca. 0.5 mm long. Fruit not known.

Known only from the steep slopes of the Coroico valley where it is a common component of

the cloud forest, especially on ridge-tops, averaging about 30 plants ≥ 2.5 cm dbh per hectare.

Additional collections examined. BOLIVIA. LA PAZ: (both from type locality), 29 Jan. 1984, *Gentry & Solomon 44775* (LPB, MO), *44786* (LPB, MO).

Only the second species of Sabiaceae known from Bolivia, *M. solomonii* is very different from *M. boliviensis* Cuatrec., which has much larger reddish pubescent leaves. The new species is characterized especially by the unusually small, lanceolate to very narrowly elliptic, coriaceous leaves, which are similar in size and shape to (but more coriaceous than) those of *M. sellowii* Urban of coastal Brazil. The other small-leaved Andean species of *Meliosma* (*M. tachirensis* Steyerl. & A. Gentry (ined.), *M. meridensis* Lasser) have denser inflorescences, as does mostly lowland *M. herbertii* Rolfe (Antilles and Venezuela). Colombian and Venezuelan *M. meridensis* (which should include *M. uberrima* Idrobo & Cuatrec.) is most similar in leaf texture to *M. solomonii* but its leaves have rounded or obtuse apices.

Meliosma vasquezii A. Gentry, sp. nov., TYPE: Peru. Loreto: Provincia Maynas, Caseria Alianza, Río Tamshiyacu, non-inundated forest on lateritic soil, trail toward Río Maniti, 140 m alt., 72°58'W, 4°5'S, 1 Aug. 1980, *Gentry, Vasquez, Jaramillo, Andrade & Stern 29270* (holotype, AMAZ; isotypes, AAU, F, G, IBE, MO, NY, USM).

Arbor 12–20 m alta. Folia obovata, 17–35 cm longa, 7.5–15 cm lata, saltem infra sparsim puberula. Inflorescentia laxa paniculata, saltem 30 cm longa, puberula. Fructus oblongo-obovoideus, 2–2.4 cm longus, 1.5–2 cm latus.

Tree 12–20 m tall, the branchlets somewhat angled to terete, finely puberulous. Leaves clearly alternate, obovate, acuminate, 17–35 cm long, 7.5–15 cm wide, the acumen to 2.5 cm long, the base cuneate, chartaceous, rather remotely sharply serrate, drying dark above, brownish below, the main veins subplane to slightly impressed above, prominently raised below, the tertiary venation plane above, prominulous below, glabrous above except on midvein and sometimes on secondary veins, below puberulous along veins and sparsely over surface; petiole 3.5–6 cm long, rather densely puberulous with suberect reddish trichomes. Inflorescence (seen only in fruit) large, openly paniculate, to at least 30 cm

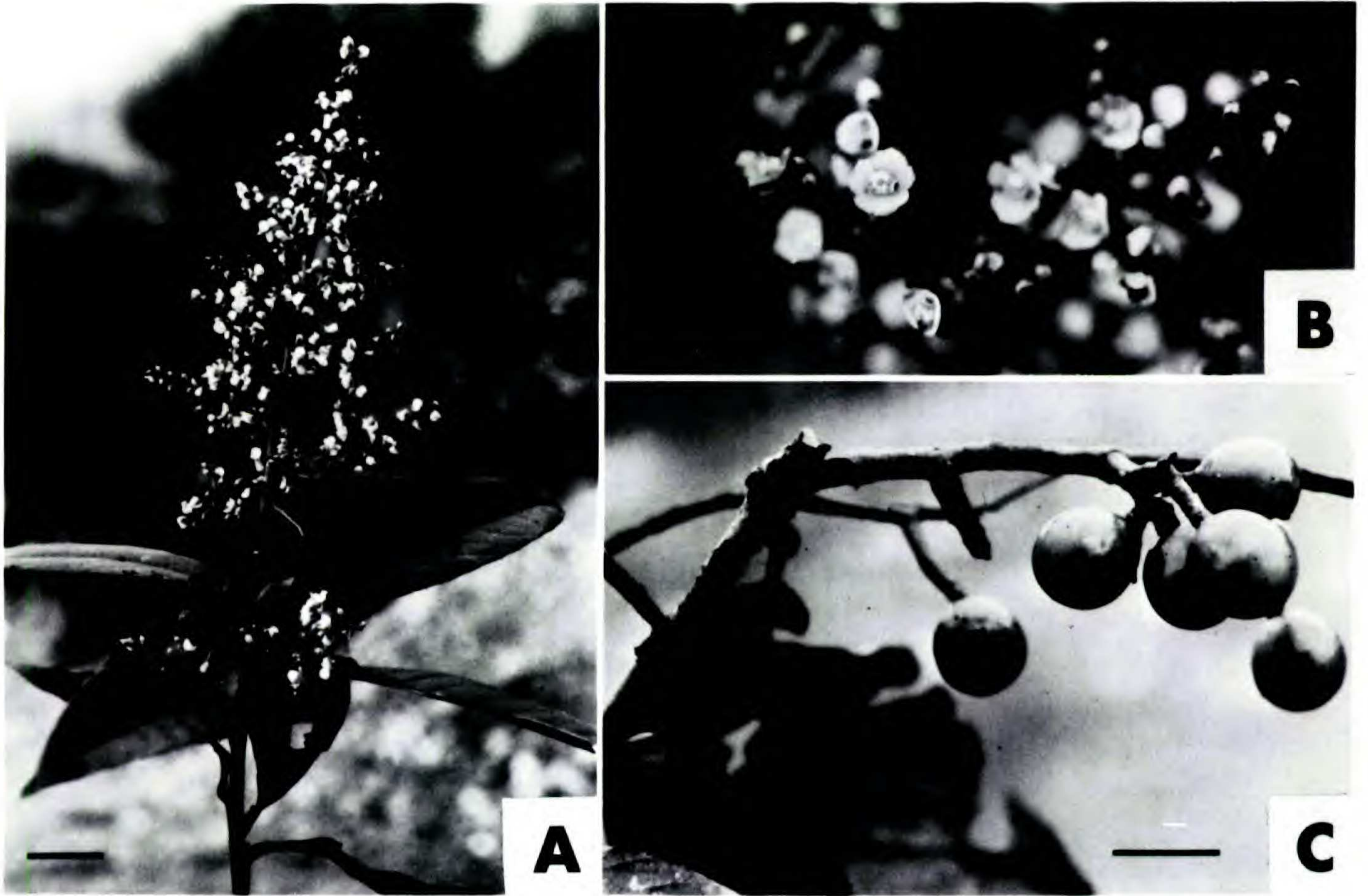


FIGURE 1. New *Meliosma* species.—A, B. *M. solomonii* A. Gentry.—A. Flowering branch (line is 2 cm).—B. Close-up of portion of inflorescence (line is 5 mm) (Gentry & Solomon 44710). C. *M. vasquezii* A. Gentry (line is 2 cm) (Gentry et al. 29270).

long, somewhat persistently puberulous, the fruits on thick woody pedicels. Flowers not seen. Fruits turning black, sessile, oblong-obovoid, 2–2.4 cm long, 1.5–2 cm wide, glabrous.

Widespread but rarely collected in lowland Amazonian Peru.

Additional collection examined. PERU. LORETO: Varadero de Mazán from Río Amazonas to Río Napo, 22 Aug. 1972, Croat 19444 (MO).

This is one of the largest-leaved and largest-fruited species of the genus. In addition to the large leaf size it is characterized by the very long petioles and rather thin leaf texture. It is one of the very few species of the genus that reach low-

land Amazonia. Perhaps as many as three other similarly large-leaved but more glabrescent species of *Meliosma* have been collected in lowland Amazonian Peru and Ecuador. One of these, which may be conspecific with Venezuelan *M. aristeguietae* Steyerm. & A. Gentry (ined.), differs in a smaller (1.5 cm diameter) conspicuously keeled fruit as well as in vegetative characters; another, which may be conspecific with Panamanian and Costa Rican *M. allenii* Standley & L. Williams, has entire leaves and a tendency toward parallel tertiary venation.

The Croat collection was originally determined as *Licania egleri* (Chrysobalanaceae), and duplicates were distributed under that name.